

This listing of claims will replace all prior versions and listings of claims in this application:

a.) Listing of Claims

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (New) A process for the oxidation of a sulfide material that includes a nonferrous, rare or precious metal, comprising:
 - a. treating a slurry that includes the sulfide material with an oxidizing nitrogen compound; and
 - b. neutralizing sulfuric acid produced in treating the slurry with the oxidizing nitrogen compound.
7. (New) The process of claim 6, wherein the oxidizing nitrogen compound is selected from the group consisting of: HNO_3 , HNO_2 , N_2O_3 and any combination thereof.
8. (New) The process of claim 7, wherein the oxidizing nitrogen compound is N_2O_3 .
9. (New) The process of claim 6, wherein at least a portion of the oxidizing nitrogen compound is regenerated.
10. (New) The process of claim 6, further comprising oxidizing NO formed by treating said slurry with the oxidizing nitrogen compound to produce N_2O_3 .
11. (New) The process of claim 10 wherein the N_2O_3 is used to treat said slurry.

12. (New) The process of claim 10, wherein NO is oxidized with pure oxygen.
13. (New) The process of claim 10 wherein NO is oxidized with air.
14. (New) The process of claim 13, further comprising removing inert nitrogen from a gas stream that includes N₂O₃ or from a gas stream that includes NO.
15. (New) The process of claim 6, wherein the sulfuric acid is neutralized with a substance selected from the group consisting of CaCO₃, MgCO₃, Ca(OH)₂, CaO, NaOH and CaHPO₄.
16. (New) The process of claim 6, wherein neutralizing the sulfuric acid is controlled to minimize elemental sulfur formation.
17. (New) The process of claim 6, wherein the slurry is agitated.
18. (New) The process of claim 6, wherein oxidation of the sulfide is at a temperature in the range of from 20 to 90 degrees C.
19. (New) The process of claim 6, wherein the slurry has a liquid to solid ratio in the range of from 1:1 to 5:1.
20. (New) A hydrometallurgical method including the process of claim 6.
21. (New) The hydrometallurgical method of claim 20, further comprising extracting at least one nonferrous, rare or precious metal from a cake obtained from said process.
22. (New) The hydrometallurgical method of claim 21, wherein the at least one nonferrous, rare or precious metal is extracted by treatment with cyanide.

23. (New) A process for reducing elemental sulfur formation in a process for recovering a nonferrous, rare or precious metal from a sulfite material, comprising:
- a. treating a slurry that includes the sulfide material with an oxidizing nitrogen compound in the presence of acidity neutralizers, thereby generating sulfuric acid; and
 - b. decreasing the concentration of the sulfuric acid in the slurry, thereby reducing elemental sulfur formation.
24. (New) The process of claim 23, wherein the sulfuric acid generated in the slurry does not exceed 20 grams/liter.
25. (New) A method for the hydrometallurgical recovery of nonferrous, rare or precious metals from a sulfide mineral or concentrate comprising a process that includes:
- a. directing N_2O_3 product to a slurry that includes the sulfide mineral or concentrate thereby oxidizing the sulfide mineral or concentrate and generating NO;
 - b. neutralizing sulfuric acid formed in oxidizing the sulfide mineral or concentrate; and
 - c. oxidizing the NO to produce the N_2O_3 product .
26. (New) The method of claim 25, further comprising extracting at least one nonferrous, rare or precious metal from a cake obtained from said process.
27. (New) The method of claim 26, wherein the at least one nonferrous, rare or precious metal is extracted by treatment with a cyanide.
28. (New) The method of claim 25, wherein NO is oxidized with pure oxygen.
29. (New) The method of claim 25, wherein NO is oxidized with air.


30. (New) The method of claim 29, wherein inert nitrogen is separated from a N_2O_3 stream or a NO stream.
31. (New) The method of claim 25, wherein a N_2O_3 stream is absorbed in sulfuric acid solution followed by denitration.
32. (New) The method of claim 25, wherein a NO stream is directed to a monovalent copper salt solution followed by denitration.
33. (New) The method of claim 25, wherein the slurry is agitated.
34. (New) The method of claim 25, wherein elemental sulfur production is minimized.
35. (New) The method of claim 25, wherein the sulfide mineral or concentrate is oxidized at a temperature in the range of from 20 and 90 degrees C.
36. (New) The method of claim 25, wherein the slurry has a liquid to solid ratio in the range of from 1:1 to 5:1.

Application No.: Not yet assigned
U.S. National Stage of PCT/RU2003/000170
Amendment dated: June 22, 2005
Attorney Docket No.: 0065.0002US1

Claims 1-5 have been cancelled. New claims 6-36 have been added to
alternatively define Applicant's invention. No new matter has been added.

Examination on the merits is now requested.

Respectfully submitted,

By  35900
Maria M. Enseeva
Registration No.: 43,328
Tel.: 781 863 9991
Fax: 781 863 9931

Lexington, Massachusetts 02421

Date: 